

June 3d.

Mr. LEA, President, in the Chair.

Twenty-two members present.

The following papers were presented for publication :

New Melanidæ of the United States. By Isaac Lea.

New Unionidæ of the United States. By Isaac Lea.

June 10th.

Mr. JEANES in the Chair.

Sixteen members present.

The following paper was presented for publication :

Descriptions of new Genera, Subgenera and Species of Tertiary and Recent Shells. By T. A. Conrad.

June 17th.

Vice-President BRIDGES in the Chair.

Seventeen members present.

The following papers were presented for publication :

Notice of a Collection of the Fishes of California, &c. By Theo. Gill.

Synopsis of the Lophobranchiate Fishes of Western North America. By Theo. Gill.

June 24th.

Vice-President BRIDGES in the Chair.

Eighteen members present.

On report of the respective Committees, the papers of Mr. Lea, read June 3d, were ordered to be published in the Journal, and the following in the Proceedings.

Notice of a Collection of the FISHES of California presented to the
Smithsonian Institution by Mr. Samuel Hubbard.

BY THEODORE GILL.

The collection of Fishes noticed in the present article was formed by Mr. Samuel Hubbard, of the Pacific Mail Steamship Company, during the past two years. Although small, it contains several species of considerable rarity and not less than five new ones, two species represent entirely "new" genera. The species will hereafter be more fully described.

Family *EMBIOTOCOIDÆ** Agassiz.

* The family of Embiotocoids appears to be represented by two subfamilies and thirteen genera,—I. *EMBIOTOCINÆ*, with the genera *Hypsurus* A. Ag., *Phanerodon* Grd. (incl. *Embiotoca argyrosoma* Grd.), *Ditrema* T. S., *Embiotoca* Ag., *Damalichthys* Grd.

Subfamily EMBIOTOCINÆ Gill.

This subfamily embraces all the Embiotocoid fishes, with the exception of *Hysterochrysurus*, which is the type of a second one (*Hysterochrysurinae* Gill.) The group is thus limited to embrace those fishes whose dorsal fin has a longer soft than spinous portion. In *Hysterochrysurus*, on the contrary, the spinous portion is considerably longer than soft, and has 16 to 18 spines; that genus is composed of a single fluviatile species.

DAMALICHTHYS LATERALIS Gill.

Five specimens are in the collection, all young and representing the stage named by Girard *Embiotoca ornata*.

EMBIOTOCA JACKSONII Agassiz.

Several fine specimens.

AMPHISTICHUS ARGENTEUS Agassiz.

Two specimens.

HYPERPROSOPON ARCUATUS Gibbons, (nec A. Ag.)

This species is very closely related to the *Hyperprosopon argenteus* of Gibbons; the description of the latter being essentially applicable, with the following exceptions:

1st. The forehead is higher in the middle and the frontal outline little incurved.

2d. The snout is at the horizon of the centre of the pupil, or even lower, and not as elevated as its upper border.

3d. D. 27. A. III. 32—33.

8 5
4th. Scales 72 —, —.
21 6

In almost other respects it resembles *Hyperprosopon argenteus*, and has the same terminal blackish ventral band.

Two specimens, a male and female, equal in size to those of *Hyperprosopon argenteus*, are in the collection of Mr. Hubbard.

HYPOCRITICHTHYS ANALIS Gill.

HYPERPROSOPON ANALIS A. Agassiz.—I refer to this species, which has

(incl. *Embiotoca lateralis* Ag.), *Rhacochilus* Ag., *Amphistichus* Ag., *Holconotus* Ag., (nec Grd.), *Cymatogaster* Gib. (aggregatus), *Hypocritichthys* Gill, *Hyperprosopon* Gib., *Brachyistius* Gill, (*B. frenatus*, new sp. with small mouth, uniserial acute teeth.

D. VIII. 13—15. A. III. 21, 22. Scales 38, 39 ———. Purplish, with a longitudinal band on head interrupted by eye. Abeona Grd. (*minima*).

II. HYSTEROCHRYSURINÆ, with one genus,—*Hysterochrysurus* Gib. These thirteen genera contain at least eighteen species, *Hyperprosopon* having three, and *Damalichthys*, *Phanerodon* and *Holconotus* each two.

I have adopted the name of *Cymatogaster* instead of *Micrometrus*, because the former was first applied in publication to the species here retained under it, and its application to another type and the substitution, for the present, of the name of *Micrometrus*, as exhibited in publication, was an after thought. As it is generally acknowledged that an author has no more right to modify the nomenclature introduced by himself than another, such a change cannot be accepted.

The genus *Micrometrus* of Gibbons included two types; the first was considered by Girard, from the slight description of Agassiz, to be identical with the *Holconotus* of the latter. The second was regarded as a distinct generic type, and named *Abeona*. The correctness of this differentiation being admitted, the name of *Abeona* must be retained, and *Micrometrus* of Agassiz be regarded as a synonym of *Micrometrus*, itself as above considered, a synonym of *Cymatogaster*.

1862.]

not yet been described, two specimens in Mr. Hubbard's collection, the possession of an authenticated specimen, received by the Institution, from M. Agassiz enabling me to do so with perfect certainty.

Hyperprosopon analis has been truly affirmed by A. Agassiz to have "the general appearance and about the size of *Metrogaster aggregatus* Agass., but the teeth and the shape of the dorsal fin show that it is a true *Hyperprosopon*," and, notwithstanding the superficial resemblance to another type, it may be added, that the physiognomy is also essentially more like that of *Hyperprosopon* than *Cymatogaster* (or *Metrogaster Ag.*) The difference between it and the typical species of *Hyperprosopon* is, however, so great as to authorize its generic separation.

The body is oblong, the height little exceeding three-tenths of the extreme length, of which latter the head forms less than a fourth. The head itself is oblong conic; the diameter of the eye about equal to a quarter of its length, and not much longer than the snout; the latter is as high or higher than the upper border of the pupil; the forehead less depressed than in *H. argenteus*.

D. IX. 22. A. III. 24. Scales 65 $\frac{6}{16+2}$.

The color is silvery, slightly tinged with brassy on the sides and light purplish on the back; the margin of the elevated spinous portion of the dorsal is blackish, and the anal has a very distinct ink-like spot between its fourth and eleventh rays.

The species referred to *Hyperprosopon* may be thus distinguished:

- I. Body convex and high, the height more than a third of the length, and the back behind nape convex. Head rhombic, about as high as long. Eyes very large. Snout short.
 - D. IX. 26—27. A. III. 32—34. *Hyperprosopon*.
 - α. Ventrals with a broad terminal black band.
 - Scales 85 $\frac{8}{20-21}$ *H. argenteus*.
 - Scales 72 $\frac{8}{21}$ *H. arcuatus*.
 - β. Ventrals uniformly colorless *H. agassizii*.*
- II. Body oblong, subfusiform, with the back before the dorsal scarcely convex. Head oblong-conic. Eyes moderate.
 - D. IX. 22. A. III. 24 *Hypocritichthys*.
 - Scales 65 $\frac{6}{16}$ *H. analis*.

* *Hyperprosopon agassizii* Gill.

This species is closely related to *H. arcuatus* Gibbons, but the occipital region is more elevated and obliquely convex; the caudal fin less emarginated, its margin dark and the ventral fins are colorless.

D. IX. 27. A. III. 33. P. 25. Scales 65 $\frac{8}{19-20}$.

This species is the one to which the name of *H. arcuatum* Gibbons refers in the "Notes on the described Holconoti," by A. Agassiz. Gibbons' species is, however, quite different, and rather allied to *H. argenteus* than to the present one.

The following table shows the relative proportion of the several species:

	arg.	arc.	Ag.
Extreme length (=100).	7½	8½	6½
Height,	36	36	37
Head—Length of head,	24	23	23
Eye—Diameter,	7½	7½	7
Snout—Length,	5½	5	5

SCLENOIDS (Cuv.) Gthr.

ISOPISTHINÆ Gill.

SERIPHUS POLITUS Ayres.

Seriphus politus Ayres, Proc. Cal. Acad. Nat. Sc., pt. ii. p. 80.

I refer to this species a fish sent by Mr. Hubbard. It, however, disagrees in many important respects with Dr. Ayres' description, but, as the differences which the diagnosis of that gentleman offer in comparison with the present species are equally at variance with the attributes of all Sciænoid fishes, I am compelled to believe that Ayres has quite seriously erred in his description.

The present fish agrees with other Sciænoids in having seven branchiostegal rays, scales on the head and not more than two anal spines and five branched ventral rays. The second dorsal, anal and caudal fins are naked, and do not appear to have been scaly, except the interval between the median rays of the latter through which the lateral line runs as usual. The outer teeth of the upper jaw are erect and the interior bent back. The pectoral is more than half as long as the head, equalling the space between the orbit and its axilla, while the ventrals are rather less than half as long as the head.

D. VII. II. 1. 18. A. II. 1. 20. C. 4. 1. 8, 7. 1. 3. P. 2. 1. 4. V. I. 5.

9

Scales 65 —.

Pseudobranchiæ are developed.

Family CHIROIDÆ (Sw.) Gill.

Subfamily CHIRINÆ Gill.

CHIRUS GUTTATUS Girard.

Two specimens.

Scales (1); lat. line 105; transverse line from dorsal to ventral fin. 1 | 4 | 8 | 35 = 51.

CHIRUS CONSTELLATUS Girard.

One specimen was forwarded.

The two species here enumerated are excessively nearly allied, but appear to constantly differ in the color of the pectoral fin, *Chirus guttatus* having them plain, while *Chirus constellatus* has white dotted pectorals. The former species has the same form as *Chirus constellatus*, and I am quite unable to appreciate the justness of Girard's remark that "the body in its general outline is intermediate in form between *C. constellatus* and *C. pictus*, though more like the latter in its general bearing, the dorsal and ventral outlines being more arched." Girard has confined his comparisons to the *C. pictus*, from which it is totally different in proportions, squamation, color, &c., but has not assigned the characters which really distinguish it from *C. constellatus*. The color of neither species is accurately described.

Subfamily OXYLEBIINÆ.

Genus OXYLEBIUS Gill.

This genus is allied to *Zaniolepis* (*Girard*), but the form is shorter and compressed, the ctenoid scales are similar to those of *Chirus* (*Steller*), the profile from the depressed nape rectilinear and the snout pointed, the first dorsal fin convex, increasing rapidly from the first to the fifth spines, and with the membrane behind the anterior as well as others not notched. The anal fin is shorter, coterminous with the second dorsal, and with the anal spines stronger, the second being longest as in *Zaniolepis*. The lower rays of the pectorals are 1862.]

simple and nearly entire, and the ventral fins perhaps inserted farther behind, its second soft ray slightly produced and the membrane between it and the first acutely notched. The caudal fin is truncated. The teeth are present on the jaws, vomer and palatine bones as in *Zaniolepis*, those of the former being larger in the outer row, and, as in that genus, there are six branchiostegal rays.

OXYLEBIUS PICTUS Gill.

D. XV. + I. 14. A. III 12¹-. C. 1. I. 6. 5. I. 1. P. 10 + 6. V. I. 5.
1

The color is brownish, or dark tawny yellow, with indistinct lighter spots and with six undulating, vertical, dark purple bands ascending on the dorsal and anal fins, as wide as the intervals between them on the back and narrower below. The first band is under the three anterior dorsal spines and descends to the scapular bone; the second from the sixth to eighth spines, ceases behind the bases of the ventral fins; the third extends over the last five spines and descends on the spinous portion of the anal; the fourth covers the dorsal between the fifth and ninth soft rays and descends on the anal between and across the fourth to sixth rays; the fifth is close before the end of the vertical fins; and the sixth partly on the end of the caudal peduncle and partly on the fin. The head has an arched band from the snout to the margin of the operculum, interrupted by the lower half of the eye; beneath that band and on the branchiostegal membrane are numerous rather large spots. An arched band from the nape runs toward each eye below the posterior angle. The four small tufts, one over each eye and one on each side of the nape, are scarlet. The upper part of the spinous dorsal is light, and the margin of the soft mostly blackish. The anal is saffron yellow, and between the broad bands continued on it from the body are linear ones, parallel with them, the last crossing near the ends of the last four rays. The caudal has two or three bands; the pectoral four, and the ventral two.

Subfamily HOPLOPOMATINÆ Gill.

OPHODON ELONGATUS Girard.

Two fine but small specimens of this species are in the collection.

Family SCORPÆNOIDÆ (Sw.) Gill.

Subfamily SCORPÆNINÆ (Sw.) Gill.

Genus SEBASTODES Gill.

This genus is readily distinguished by the characters assigned to it in the Proceedings of the Academy for 1861; the head above is quite unarmed. The other species of California referred to the genus *Sebastes* belong to another one distinguished by a form nearly similar to that of the true *Sebastes*, but with a dorsal fin armed with only twelve or thirteen (XI.—XII. + I.) spines, and having, as far as known, only ten abdominal and fourteen caudal vertebrae. With regard to the *Sebastes elongatus* of Ayres there is some doubt, but it appears, from the only description and figure published of it, to be, if not congeneric with the other Californian species, to be at least more nearly allied to them than to *Sebastes*. The genus comprising *S. nigrocinctus* Ayres, *S. nebulosus* Ayres, *S. auriculatus* Girard, *S. ocellatus* Cuv. (= *S. helcomaculatus* Ayres), *S. melanops* Girard and *S. rosaceus* Ayres may be called *Sebastichthys*.* Not having had the opportunity to examine all of the foregoing species, I cannot be certain that all are valid.

* The species of *Sebastes* without palatine teeth, of which the *S. polycephalus* of Bleeker and Gunther is one, may be considered as representing another generic type (*Sebastopsis* Gill)

SEBASTODES PAUCISPINIS Gill.

One specimen is in the collection.

Family COTTOIDÆ Girard.

Subfamily COTTINÆ.

ASPIDOCOTTUS BISON Girard.

Three small specimens.

ARTEDIUS NOTOSPILOTUS Girard.

Three small specimens of this species are also in the collection. The species undergoes so considerable a change with age, especially in the armature of the head, that it might readily be the cause of a multiplication of nominal species.

Family GOBIOIDÆ.

Subfamily GOBIINÆ.

LEPIDOGOBIUS GRACILIS Gill.

Two specimens in the collection.

The *Gobius newberryi* of Girard is the type of another genus, to which the name of *Eucyclogobius* may be given; it is distinguished from *Lepidogobius* by the naked head, the oblong and equal second dorsal and anal fins, &c.

Family BLENNIOIDÆ.

Subfamily CEBEDICHTHYINÆ Gill.

CEBEDICHTHYS VIOLACEUS Girard.

A fine specimen is in the collection.

Subfamily CENTRONOTINÆ Gill.

APODICTHYS VIRESCENS Ayres.

Three specimens.

The *Apodichthys flavidus* of Girard, as originally based, may possibly be distinct from *A. virescens* Ayres, but there can be no doubt that one of the specimens sent to the Smithsonian Institution by Ayres under the name of *A. virescens* and referred by Girard to *A. flavidus*, truly belongs to the former species.

APODICTHYS SANGUINEUS Gill.*

This species resembles *Apodichthys virescens*, but is of a beautiful intense red color, minutely punctulated with darker; the dorsal and anal fins have the margins rather darker and with a yellow dot generally in front of the tip of each fourth to sixth ray, and more distinct on the anal. A dark purple line under the eye is behind the upper jaw, but there is none above.

D. XXIII.—XCV. A. I.—40.

* A specimen of *Apodichthys* which appears to represent another species of the genus was obtained by the naturalist of the Northwestern Boundary Commission. It is thirteen inches long and rather discolored, but does not exhibit any trace whatever of the characteristic line behind the upper jaw and below the eye. The anal spine is much shorter and transversely cleft at the tip; the latter is probably abnormal. I have deferred a description, hoping to have the validity of the species confirmed by other specimens, and am very reluctant to name it from the single one in the collection, but as this notice may call attention to it, I have finally resolved to publish. The species may be called *A. inornatus*. The radial formula is D. XC. A. I.—38. C. 23. P. 2. 11. 1. In proportions it does not essentially differ from *A. virescens* or *A. flavidus*. The eye is, perhaps, smaller and the body higher. The color is brownish, with a dark spot or blotch on the back at the base of every fourth or fifth spine.

A single adult specimen was sent to the Institution by Mr. Hubbard, and a smaller one is in the collection formed by the Northwestern Boundary Commission.

Family *BATRACHOIDÆ*.

PORICHTHYS POROSISSIMUS Girard.

After an autoptical examination of adult specimens, Dr. Günther was unable to distinguish between the Pacific and Atlantic representatives of *Porichthys*. I am therefore compelled to follow him. The only specimens of the Atlantic fish that I have seen were young.

Family *ATHERINOIDÆ*.

CHIROSTOMA CALIFORNIENSE Gill.

Atherinopsis californiensis Girard, Ayres.

Two fine specimens in the collection.

I fully concur with Messrs. Günther and Ayres in uniting *Atherinopsis*, *Basilichthys* and *Heterognathus* of Girard in one genus, but am compelled to retain for that genus the name of *Chirostoma* given by Swainson, he having first truly limited it. The *A. affinis* and *A. tenuis* of Ayres must consequently be named *Chirostoma affine* and *C. tenue*.

The *Atherina nigrans* of Richardson is scarcely a species of *Chirostoma*, but apparently the type of another genus, which may be named *Melanotænia*, distinguished by a more robust body, black lateral band, &c.

Family *GADOIDÆ*.

Subfamily *GADINÆ*.

GADUS PROXIMUS Girard.

Six fine specimens are in the collection.

This species is a true *Gadus*. The *Gadus æglifinus* L. and *G. minutus* Yarell, of our Eastern America and Northern Europe, belong to different genera. The former distinguished by its black lateral line, pointed first dorsal and emarginated caudal, may be called *Melanogrammus æglifinus* and the *Gadus minutus*, with its abbreviated head, short abdomen, emarginated caudal, &c., is the type of a genus which may be called *Brachygadus*.

Subfamily *BROSMOPHYCINÆ*.

BROSMOPHYCIS MARGINATUS Gill.

A fine specimen in the collection.

The name of *Brosomphycis* was published a short time before Ayres' name of *Halias*. The latter name has been also preoccupied.

Family *PLEURONECTOIDÆ*.

Subfamily *PLEURONECTINÆ*.

PLATICHTHYS STELLATUS Girard.

I have not been happy enough to distinguish any differences between the *Platichthys rugosus* of Girard and *Pleuronectes stellatus* Pallas. Girard has acknowledged that "the latter species is closely allied to *P. rugosus*, from which it may even not differ. An actual comparison between the specimens is, however, demanded, before a settlement of the question can be arrived at." As Richardson's elaborate description and figure are entirely applicable to the Californian species, it appears to be much more appropriate to consider the two identical until "an actual comparison" shall enable us to ascertain any differences, which is quite improbable.

[June,

Genus PAROPHRYS Girard.

Body fusiform in profile, covered with cycloid scales. Lateral line scarcely convex in front, recurrent backwards near the back. Head large and conic. Snout conic. Eyes entirely in the anterior half, contiguous and nearly even. Nostrils on the horizon of the superior margins of each orbit; the anterior subtubular; the posterior with an anterior flap. Mouth unequal, little oblique, the maxillary bones of the colored side extending little beyond the anterior margin of the orbit, and much shorter than that of the white side. Lips rather thin and simple. Teeth on the white side uniserial, contiguous, short and wide, presenting an incisorial edge as in *Pleuronectes planus*, &c. A recumbent anal spine. Caudal fin truncated or little emarginated.

This genus is most closely related to *Pleuronectes*.

PAROPHRYS HUBBARDI Gill.

This species is very slender, the height being considerably less than a third of the total length and not much greater than the head. The eyes are situated in the middle of the anterior half of the head; a diameter enters four times and a half in the length of the head. The caudal fin is slightly emarginated and forms a seventh of the total length. The pectoral bent forwards, extends little beyond the interior preopercular ridge.

D. 83. A. 62. C. 3. 6. 6. 3. P. 12. V. 6. Scales of lateral line 96.

The color is a uniform brownish.

This very fine species is distinguished especially from *Parophrys vetulus* Girard by its more elongated body and head as well as the other proportions.

I have given myself the pleasure of dedicating the species to the gentleman who has formed the collection of which the present article is descriptive. The judgment with which that collection was made is evident from the number of new species described; and the excellent condition of the specimens, all of which are in alcohol, and have even, in several cases, preserved their original colors, is worthy of all praise.

Family CLUPEOIDÆ.

Subfamily CLUPEINÆ.

ALAUSA CALIFORNICA Gill.

The form is that of a herring (*Clupea*), the back is thick and rounded, and the height little exceeds a seventh of the extreme length. The head forms little more than a fifth of the length. The opercular margin behind is vertical. The diameter of the eye is rather less than a fourth of the head's length, while the snout equals a third of the same. The lower jaw, when closed, is even with the upper, which latter has no emargination. The ventrals are under the posterior third of the dorsal.

D. 2. 1. 15. A. 2. 1. 16. P. 1. 17. V. 1. 8. Scales 57 + 6; longitudinal rows 12.

The color is silvery on the sides and beneath and blue above.

This species belongs to the genus *Alausa* of Valenciennes, but not of Nature. The genera of Clupeoids need a careful revision, altogether too much importance having been attached to the dentition. As I am not certain to what other genus the present species should be eventually referred, it is deemed advisable to retain it in that one where most naturalists would place it. It is, however, more nearly allied to the type of *Clupea* than that of *Alausa*.

Four specimens, between eight and ten inches long, are in the collection. 1862.]

Family *CYPRINOIDÆ*.

Subfamily *CYPRININÆ*.

CARASSIAS AURATUS Heckel.

Two abnormal varieties of this species,—the common and well-known "Gold-fish,"—are in the collection. One of them has the tail double, but connected at the superior margin.

Family *GALEORHINOIDÆ*.

Subfamily *GALEORHININÆ*.

TRIACIS SEMIFASCIATUS Girard.

A young specimen was sent.

ISOPLAGIODON, sp.

A new species of this family is in Mr. Hubbard's collection. As the single specimen is a young one, its positive determination is deferred for the present.

Family *RAIOIDÆ*.

Subfamily *RAIINÆ*.

URAPTERA BINOCULATA Girard.

One specimen.

Synopsis of the species of **LOPHOBRANCHIATE** Fishes of Western North America.

BY THEODORE GILL.

The present brief article is preliminary to a more extended paper on the Lophobranchiate fishes inhabiting the Western coast of the North American continent. Six species have been attributed by Dr. Girard to that coast. Subtracting from that number one which appears to have been founded on a smaller individual of the common species described by Girard as *Syngnathus californiensis*, we have still the number assigned by Girard; the *S. californiensis* of that author being distinct from the homonymous species of Storer, as shown by Ayres. All the species noticed are in the collection of the Smithsonian Institution.

Family *SYNGNATHOIDÆ* Bleeker.

Subfamily *HIPPOCAMPINÆ* (Kaup.) Gill.

Genus *HIPPOCAMPUS* Cuv.

1. *HIPPOCAMPUS GIGAS* Girard.
2. *HIPPOCAMPUS GRACILIS* Gill.

The body is very slender, the height being contained four times and a half in the length of the tail, or equal to the distance of the snout from the hinder border of the orbit. The tube forms about half the length of the head, which forms rather more than a sixth of the length. The spines at the angles of the frontal triangle are nearly equal and blunt. The coronet is rather elevated; the temporal spines rather large and blunt. The angles, especially the dorsal, of every third or fourth plate are tuberculous.

D. 19. Plates $\frac{10(3)}{10(1)38}$.

[June,